

APTD-1354

AIR QUALITY DATA FOR SULFUR DIOXIDE

1969, 1970, AND 1971

from the National Air Surveillance Networks
and
Contributing State and Local Networks

U.S. ENVIRONMENTAL PROTECTION AGENCY

Office of Air Programs

Research Triangle Park, North Carolina 27711

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November 1972

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ABSTRACT

Air quality data for sulfur dioxide 1969 through 1971, urban and nonurban sites, are presented. The data reported have been gathered at the cooperating stations of the National Air Surveillance (NASN) network.

The sulfur dioxide samples were collected by bubbling air through a solution of potassium tetrachloromercurate and analyzed using the West Gaeke method. Valid data are presented as annual sample cumulative frequency distributions. The arithmetic and geometric mean are included.

AIR QUALITY DATA FOR SULFUR DIOXIDE 1969, 1970, AND 1971

SECTION 1. INTRODUCTION AND SUMMARY

The Environmental Protection Agency (EPA), with the assistance and cooperation of State and local agencies, conducts a variety of air sampling activities to obtain information about the air quality in the United States. Data on sulfur dioxide (SO_2) collected during 1969, 1970 and 1971 at the cooperating stations of the National Air Surveillance Networks (NASN) are reported.

SAMPLE COLLECTION AND ANALYSIS

Sulfur dioxide is collected by bubbling air through a 50 milliliter solution of potassium tetrachloromercurate at a flow rate of approximately 150-200 c.c./minute over a 24-hour sampling period. After collection the sample is returned to the laboratory where sulfamic acid is added to eliminate the interference from the oxides of nitrogen, and the resulting solution is reacted with pararosaniline and formaldehyde. The light absorption of the resulting solution is measured colorimetrically, at a wavelength of 548 nanometers. The results are expressed in micrograms of SO_2 per cubic meter of air samples.¹ Because decay of the collecting solution containing SO_2 occurs at the rate of about one percent per day, the NASN samples are analyzed on the 14th day after the specified sampling date (permitting the use of a uniform decay correction).

SAMPLING LOCATIONS

The monitoring sites are divided into two groups: urban sites (Tables 2-1, 3-1, and 4-1), located somewhere within a city or town or its suburban environs, and nonurban sites (Tables 2-2, 3-2, and 4-2) located in rural or remote areas to provide an indication of background levels of SO_2 .

Each monitoring site is assigned a unique code number. Details of site coding and a list of codes already assigned are found in SAROAD Station Coding Manual.² Briefly, each twelve digit site identification number is assigned as follows: the first two digits identify the State, the next four digits identify a city of at least 2500 persons or a county (in some States the corresponding jurisdiction is a parish, election district, or regional planning district). The next three digits designate a specific address where the sampling equipment is operated. For example, 010380001 A 01 refers to State 01 (Alabama) city 0380 (Birmingham), and site 001 (619 South 19th Street). The final three characters (A01) designate the agency-project code. Some of the principal agency project codes are:

- A01 EPA, population oriented surveillance
- A03 EPA, background surveillance
- F01 State agency, population oriented surveillance
- G01 County agency, population oriented surveillance
- H01 City agency, population oriented surveillance

A listing of sampling site addresses is available in a separate publication.³

SAMPLING SCHEDULE

The NASN data within this section originate from a bi-weekly modified random sampling schedule. The schedule is modified from completely random to insure an equal representation of days of the week.

In order to have reasonable assurance that the annual summary statistics are representative, each station's data must be distributed over the calendar year so that they meet the following validity criteria for inclusion in this summary publication: a minimum of five valid scheduled samples must be collected in each quarter (Jan., Feb., Mar., etc.), and if no samples are collected in one month, neither of the other two months may have less than two valid samples. Obviously, it is desirable for networks that schedule more frequent sampling to strive for a more balanced distribution of measurements than the possible extreme combinations that could technically meet these minimum conditions for NASN stations.

DATA SUMMARIES

The data are presented as annual sample cumulative frequency distributions. The frequency distributions are calculated by first ranking the values in ascending order. Based on the total number of values, the percentiles are calculated such that the percentage of actual sample values is less than or equal to the concentrations listed for that percentile. Interpolation between actual sample values is not used. For example, if 25 samples were ranked in ascending order, ten

percent of the samples would be 2.5 samples. So the concentration of the third value is shown in the tenth percentile column. Similarly, the twentieth percentile would be the fifth value.

When "zero" concentrations (shown as 0.0 in the data tables are reported, that is, values below the minimum detectable limit, the statistics (means and standard deviations) are calculated by replacing the "zeroes" with one half the minimum detectable limit. For these summaries, the minimum detectable limit is $5 \mu\text{g}/\text{m}^3$, so $2.5 \mu\text{g}/\text{m}^3$ is used to replace zeros for calculation purposes (In 1968 the laboratory procedure set the minimum detectable limit at $5 \mu\text{g}/\text{m}^3$. However following the measurement of a high value--above $50 \mu\text{g}/\text{m}^3$ --the minimum detectable limit could briefly change to $10 \mu\text{g}/\text{m}^3$ due to methodological problems. Because a high value was observed less than 5 percent of the time, the minimum detectable limit of $5 \mu\text{g}/\text{m}^3$ was considered to be more representative of all data recorded during the year. In subsequent years--1970 and 1971--the method was remedied, eliminating this problem.) However, if between 25 and 50 percent of the values are below the detectable limit, the summary statistics are not calculated. Finally, if more than 50 percent of the values are below the detection limit, neither the summary statistics nor the frequency percentiles are calculated and the following statement is presented: "Number of samples () below the minimum detectable exceeds 50%."

In the example sample frequency distribution below, primary annual arithmetic mean standard, ($80 \mu\text{g}/\text{m}^3$) is met; the second and annual mean standard ($60 \mu\text{g}/\text{m}^3$) is exceeded. The maximum value, $305 \mu\text{g}/\text{m}^3$, is below the primary standard for a 24-hour interval ($365 \mu\text{g}/\text{m}^3$). By interpolating from the frequency distribution, it can be estimated that just over ten percent of the measurements exceed the secondary standard ($280 \mu\text{g}/\text{m}^3$).

Number of Samples	Min.	Frequency distribution, %										Max.	Arithmetic		Geometric	
		10	20	30	40	50	60	70	80	90	Mean		Std. Dev.	Mean	Std. Dev.	
26	10	14	18	21	35	54	77	93	231	269	305	73	67.38	55	2.84	

REFERENCES

1. Federal Register, Vol. 1, No. 84, Part II, April 30, 1971, pp. 8191-8194.
2. Fair, D. H., SAROAD Station Coding Manual, U. S. Environmental Protection Agency, Office of Air Programs Publication No. APTD-0907, Research Triangle Park, North Carolina 27711.
3. Directory of Air Quality Monitoring Sites, 1971, U. S. Environmental Protection Agency, Office of Air Programs Publication No. APTD-0979, Research Triangle Park, North Carolina 27711.

SECTION 2. URBAN AND NONURBAN SULFUR DIOXIDE, 1969

Table 2-1. SULFUR DIOXIDE, URBAN FREQUENCY DISTRIBUTIONS FOR 1969

YEAR : 1969

METHOD: BUBBLER/WEST-GAEKE

SAMPLING INTERVAL : 24-HOUR

UNITS : UG/CU METER (25 C)

LOCATION	NO. SAMP.	MIN.	FREQUENCY DISTRIBUTION, %										MAX.	ARITHMETIC		GEOMETRIC	
			10	20	30	40	50	60	70	80	90	MEAN		STD. DEV.	MEAN	STD. DEV.	
ALABAMA MOBILE 012380002 A01	24	5	7	7	9	10	11	11	11	18	23	100	15	18.78	12	1.83	
MGNTGOMERY 012460001 A01	26	0	5	5	7	7	7	8	9	17	19	24	10	5.88	8	1.73	
ALASKA FAIRBANKS 02C160001 A01	25	5	5	6	7	7	8	8	9	9	16	28	9	5.45	8	1.54	
ARIZONA PHOENIX 030600002 A01	25	5	5	6	7	7	8	9	10	11	19	22	10	4.74	9	1.54	
TUCSON 030860001 A01	22	5	5	7	7	7	7	9	10	11	15	27	10	5.23	9	1.54	
ARKANSAS EL DORADO 04C780001 A01	23	7	7	7	11	11	12	13	14	18	27	69	17	15.11	13	1.82	
LITTLE ROCK 041440001 A01	25	0	5	5	7	7	8	9	11	12	19	61	13	13.66	9	1.99	
CALIFORNIA ANAHEIM 050230001 A01	25	0	5	9	11	11	11	12	13	18	21	31	13	6.66	11	1.84	
BERKELEY 050740001 A01	23	0	7	7	8	9	10	11	13	18	21	73	14	14.19	11	1.95	
LONG BEACH 054100001 A01	25	7	11	17	20	26	35	41	49	52	59	66	35	17.93	30	1.88	
SAN BERNARDINO 056680001 A01	23	0	6	7	7	8	9	9	9	11	13	20	9	3.54	8	1.50	
SAN DIEGO 056800001 A01	26	5	5	7	7	9	10	11	13	18	18	30	12	5.96	10	1.63	
SAN FRANCISCO 056860001 A01	25	0	0	5	7	7	9	10	14	15	27	82	15	20.58	10	2.42	
SAN JOSE 056980002 A01	26	0	5	7	7	7	8	9	11	11	14	19	9	3.53	8	1.52	
SANTA ANA 057190001 A01	23	0	7	7	8	11	11	13	14	18	19	22	12	5.29	11	1.68	
COLORADO DENVER 06C580001 A01	21	5	5	9	12	12	14	15	18	28	30	39	17	10.02	15	1.81	
06C580002 A01	26	5	7	9	9	10	11	17	23	29	31	46	17	11.29	14	1.91	
CONNECTICUT HARTFORD 070420001 A01	26	0	7	16	18	29	32	38	97	111	128	178	56	50.82	34	3.07	
NEW HAVEN 070700001 A01	25	5	7	8	9	14	22	47	70	208	254	411	85	116.39	33	4.28	
WATERBURY 071240001 A01	25	5	7	7	9	10	11	11	25	36	60	125	25	31.29	16	2.51	
DELAWARE WILMINGTON 08C260001 A01	25	5	6	7	9	11	13	22	39	48	133	185	42	54.82	21	3.25	
DIST COLUMBIA WASHINGTON 090020001 A01	24	5	7	7	14	17	19	29	31	47	69	85	29	22.93	20	2.38	
090020003 A01	26	7	18	23	28	35	37	43	53	80	102	178	50	37.93	39	2.07	
FLORIDA JACKSONVILLE 101960002 A01	26	5	5	9	9	11	12	14	16	19	27	37	14	7.54	13	1.69	
MIAMI 102700002 A01	26	5	5	7	7	7	8	9	11	11	13	25	10	4.65	9	1.48	
ST PETERSBURG 103980002 A01	26	5	7	7	10	12	16	18	30	37	71	91	26	24.74	18	2.37	
TAMPA 104360002 A01	25	5	7	7	11	13	18	19	26	30	37	112	23	22.23	17	2.14	
GEORGIA ATLANTA 110200001 A01	26	0	5	9	9	11	13	23	38	52	57	83	26	22.62	17	2.58	
SAVANNAH 114500001 A01	25	5	7	7	9	10	11	18	20	24	32	112	19	21.24	14	2.05	

Table 2-1 (continued). SULFUR DIOXIDE, URBAN FREQUENCY DISTRIBUTIONS FOR 1969

YEAR : 1969

METHOD: BUBBLER/NEST-GABE

SAMPLING INTERVAL : 24-HOUR

UNITS : UG/CU METER (25 C)

LOCATION	NO. SAMP.	MIN.	FREQUENCY DISTRIBUTION, %										MAX.	ARITHMETIC		GEOMETRIC	
			10	20	30	40	50	60	70	80	90	MEAN		STD. DEV.	MEAN	STD. DEV.	
ILLINOIS CHICAGO 141220002 A01	25	7	28	30	74	81	123	177	262	361	448	496	184	159.08	114	3.08	
ROCKFORD 146680001 A01	26	7	10	14	16	20	21	23	35	37	68	100	30	23.55	24	1.99	
INDIANA EAST CHICAGO 151180001 A01	24	16	23	35	39	70	73	93	108	154	260	294	98	79.43	72	2.28	
EVANSVILLE 151300001 A01	26	7	7	14	17	19	21	26	29	53	73	107	32	26.38	24	2.15	
GARY 151520001 A01	25	5	7	9	11	14	19	23	29	34	91	153	33	39.83	21	2.57	
HAMMOND 151790001 A01	26	10	14	16	21	45	54	66	93	128	231	305	85	83.19	53	2.92	
INDIANAPOLIS 152040001 A01	25	0	7	10	13	18	29	34	51	56	91	164	41	39.50	26	2.85	
NEW ALBANY 152980002 A01	23	7	7	11	16	21	26	32	35	49	62	218	38	44.75	25	2.38	
IOWA DES MOINES 161180001 A01	25	0	5	5	7	7	9	11	15	17	29	95	17	22.10	11	2.34	
JUBAQUE 161240001 A01	24	0	5	5	7	7	8	9	14	29	61	119	21	30.94	11	2.83	
KANSAS TOPEKA 173560001 A01	24	0	0	5	6	7	7	7	9	11	11	30	8	5.47	7	1.79	
WICHITA 173740001 A01	25	0	5	6	7	7	7	7	9	10	11	16	8	2.71	7	1.44	
KENTUCKY COVINGTON 180400001 A01	26	7	10	10	11	16	22	29	37	41	59	121	31	27.20	23	2.20	
LOUISVILLE 182490001 A01	24	7	9	10	22	26	29	35	39	56	83	132	38	31.93	29	2.29	
LOUISIANA NEW ORLEANS 192020002 A01	24	5	5	6	7	7	7	9	10	11	15	15	9	3.23	8	1.43	
MARYLAND BALTIMORE 210120001 A01	24	7	14	18	24	36	42	63	66	106	113	172	58	42.91	42	2.35	
MASSACHUSETTS SPRINGFIELD 222160002 A01	26	11	25	31	35	37	40	48	78	115	125	192	63	44.84	50	1.97	
WORCHESTER 222640001 A01	25	7	14	17	27	28	33	45	80	123	181	338	76	89.12	45	2.77	
MICHIGAN DETROIT 231190001 A01	26	12	22	25	29	39	50	61	73	91	98	111	55	31.09	46	1.89	
FLINT 231540001 A01	25	7	9	9	17	13	20	23	29	35	66	72	25	19.02	20	2.00	
GRAND RAPIDS 231920001 A01	25	6	7	8	9	14	17	18	21	25	37	53	19	12.40	16	1.85	
LANSING 232840001 A01	23	0	9	11	11	14	16	17	22	29	66	76	73	20.64	17	2.20	
SAGINAW 234760001 A01	24	7	10	11	12	15	17	20	21	35	42	86	23	17.15	19	1.81	
MINNESOTA MINNEAPOLIS 242260001 A01	25	0	5	7	9	11	13	17	25	38	75	104	26	28.90	16	2.70	
MISSOURI KANSAS CITY 262380002 A01	23	5	5	7	7	9	9	11	14	21	29	48	14	11.34	11	1.94	
ST LOUIS 264280001 A01	24	9	11	15	23	40	42	79	100	119	144	266	73	67.38	46	2.78	
264280002 A01	25	7	18	20	27	48	57	70	85	91	163	218	69	53.79	50	2.41	
NEBRASKA OMAHA 281890001 A01	26	7	7	7	8	9	11	12	15	38	77	15	15	15.76	11	1.97	

Table 2-1 (continued). SULFUR DIOXIDE, URBAN FREQUENCY DISTRIBUTIONS FOR 1969

YEAR : 1969

METHOD: BUBBLER/WEST-GAEKE

SAMPLING INTERVAL 24-HOUR

UNITS : UG/CU METER (25 C)

LOCATION	NO. SAMP.	MIN.	FREQUENCY DISTRIBUTION, %										MAX.	ARITHMETIC		GEOMETRIC	
			10	20	30	40	50	60	70	80	90	MEAN		STD. DEV.	MEAN	STD. DEV.	
NEW JERSEY																	
BURLINGTON CO 310660002 A01	24	7	9	12	15	21	25	32	38	47	70	117	33	26.73	25	2.16	
CAMDEN 310720001 A01	26	7	56	79	84	105	110	140	178	196	226	292	131	70.72	108	2.13	
GLASSBORO 3117000C1 A01	26	0	5	5	7	7	7	7	8	9	11	13	7	2.37	7	1.41	
JERSEY CITY 312320001 A01	25	0	5	5	7	7	7	11	17	42	104	152	30	42.25	13	3.38	
NEWARK 313480001 A01	25	0	10	21	35	42	48	53	76	98	135	159	61	45.08	44	2.67	
PATERSON 314140001 A01	22	7	7	22	28	34	44	58	69	86	118	140	57	45.98	39	2.64	
NEW MEXICO ALBUQUERQUE 320040001 A01	23	0	5	5	6	7	8	8	10	11	15	13	11	15.98	8	1.98	
NEW YORK ALBANY 330040001 A01	26	7	12	18	24	32	44	50	59	61	81	149	46	30.98	36	2.09	
BUFFALO 330660001 A01	23	5	7	7	8	9	10	11	12	14	15	19	11	3.54	10	1.40	
ROCHESTER 335760001 A01	25	0	9	11	26	33	42	51	69	113	153	266	64	63.38	39	3.08	
SYRACUSE 336620001 A01	24	7	8	11	14	16	22	29	31	37	40	79	26	18.55	21	2.00	
UTICA 336980001 A01	26	7	7	7	9	11	15	22	27	32	46	68	21	16.73	17	2.07	
NORTH CAROLINA GREENSBORO 341740001 A01	25	5	7	7	9	12	14	19	26	30	45	50	20	14.15	15	2.05	
OHIO AKRON 3607600C1 A01	23	5	8	9	13	23	36	47	66	98	111	145	51	44.58	32	2.92	
CANTON 3610000C1 A01	26	8	14	17	22	28	28	33	40	46	74	93	34	20.65	29	1.31	
CINCINNATI 361220001 A01	23	7	9	10	15	16	19	20	23	40	47	116	26	24.34	20	2.05	
	25	7	11	14	17	20	21	31	44	47	59	73	30	18.86	25	1.92	
CLEVELAND 361300001 A01	26	7	14	40	40	55	58	67	73	79	114	248	66	47.25	52	2.18	
COLUMBUS 361460001 A01	26	7	13	17	19	21	22	25	32	42	56	83	29	17.42	25	1.75	
DAYTON 3616600C1 A01	26	0	0	5	7	9	9	11	11	13	15	27	10	5.92	8	1.36	
TOLEDO 366600001 A01	26	7	9	18	19	21	26	29	38	52	65	95	33	22.84	27	1.67	
YOUNGSTOWN 3677600C1 A01	26	9	10	19	26	33	41	49	59	79	124	142	52	39.34	38	2.30	
OKLAHOMA TULSA 373000001 A01	26	9	5	5	7	7	7	7	9	9	11	14	8	2.57	7	1.43	
PENNSYLVANIA ALLENTOWN 390120001 A01	24	7	16	20	27	38	39	40	67	103	119	229	57	50.58	42	2.28	
JOHNSTOWN 394460001 A01	24	11	14	16	27	27	29	39	45	62	71	121	39	25.78	32	1.47	
PHILADELPHIA 397140001 A01	25	11	18	27	44	49	51	57	67	122	155	175	70	48.41	45	2.10	
PITTSBURGH 397260001 A01	26	7	15	45	58	66	76	86	91	100	114	194	76	40.75	67	2.15	
READING 397620001 A01	25	5	7	8	14	21	32	38	50	93	145	243	54	54.15	36	3.12	
HARRISBURG 399160001 A01	25	9	9	10	16	18	25	28	31	46	54	89	28	13.97	23	1.94	
WEST CHESTER 399280001 A01	26	5	7	7	9	15	17	19	23	30	54	126	24	25.29	17	2.25	
YORK 399560002 A01	26	5	9	13	20	26	40	54	65	68	84	114	44	30.18	32	2.42	

Table 2-1 (continued). SULFUR DIOXIDE, URBAN FREQUENCY DISTRIBUTIONS FOR 1969

YEAR : 1969

METHOD: BUBBLER/WEST-GAEKE

SAMPLING INTERVAL : 24-HOUR

UNITS : UG/CU METER (25 C)

LOCATION	NO. SAMP.	MIN.	FREQUENCY DISTRIBUTION, %										ARITHMETIC		GEOMETRIC	
			10	20	30	40	50	60	70	80	90	MAX.	MEAN	STO. DEV.	MEAN	STO. DEV.
PUERTO RICO BAYAMON 400380002 A01	26	5	5	7	7	7	7	9	9	10	14	35	9	5.89	8	1.53
GUAYANILLA 401090002 A01	24	0	7	7	9	10	11	16	17	20	21	36	14	7.37	12	1.70
RHODE ISLAND PROVIDENCE 410300001 A01	26	9	12	19	25	65	69	114	190	214	331	369	121	111.92	69	1.33
SOUTH DAKOTA BLACK HILLS NAT FO 43C110001 A01	26	0	5	5	6	7	7	7	9	10	14	17	8	3.66	7	1.59
CUSTER CO 43C420001 A01	26	0	5	5	6	7	7	7	9	10	14	17	8	3.66	7	1.59
TENNESSEE CHATTANOOGA 44C380001 A01	26	0	0	5	7	8	9	10	13	13	15	72	11	13.00	9	2.00
MEMPHIS 442340001 A01	26	5	5	7	7	7	9	9	10	11	18	32	10	5.86	9	1.57
NASHVILLE 442540001 A01	28	0	7	7	8	9	10	12	21	24	65	82	20	20.95	13	2.34
TEXAS DALLAS 451120002 A01	25	5	5	7	7	7	9	9	10	11	14	17	9	3.43	8	1.54
PORT WORTH 451340001 A01	24	0	5	6	7	7	7	8	11	12	24	42	11	9.13	9	1.74
HOUSTON 452500001 A01	26	7	0	6	7	7	8	9	9	13	18	39	10	7.11	8	1.96
PASADENA 454060002 A01	24	0	5	5	7	7	7	7	11	19	23	58	12	12.29	9	2.07
SAN ANTONIO 454570001 A01	25	5	5	6	7	7	7	7	8	9	13	34	9	5.71	9	1.49
UTAH SALT LAKE CITY 46C990001 A01	25	6	7	9	12	13	14	21	21	31	60	181	24	34.71	19	2.29
VIRGINIA NOXFOLK 462140001 A01	26	7	9	11	14	20	24	36	45	60	82	109	14	28.91	26	2.23
PAGE CO 462320001 A01	26	5	5	7	7	9	11	11	12	14	18	22	11	4.74	10	1.54
RICHMOND 462540002 A01	25	0	11	11	14	17	18	27	35	57	66	72	23	21.39	23	1.99
SPRINGFIELD NAT PAR 462780001 A01	26	5	5	7	7	9	11	11	12	14	18	22	11	4.74	10	1.54
WASHINGTON SEATTLE 471440001 A01	27	11	11	17	19	21	29	36	39	50	82	165	41	37.68	30	2.10
WEST VIRGINIA CHAPEL-STON 48C280001 A01	26	9	11	14	14	19	19	22	30	30	104	169	15	41.53	24	2.24
WISCONSIN MILWAUKEE 5122C0001 A01	25	0	7	9	11	13	14	19	21	22	27	35	16	7.67	14	1.80
WYOMING CASPER 522120001 A01	25	5	7	7	7	7	9	9	11	11	29	74	14	15.77	10	1.71

Table 2-2. SULFUR DIOXIDE, NONURBAN FREQUENCY DISTRIBUTION FOR 1969

YEAR : 1969

METHOD: BUBBLER/WEST-GAEKE

SAMPLING INTERVAL : 24-HOUR

UNITS : UG/CU METER (25 C)

LOCATION	NO. SAMP.	MIN.	FREQUENCY DISTRIBUTION, %										MAX.	ARITHMETIC		GEOMETRIC	
			10	20	30	40	50	60	70	80	90	MEAN		STD. DEV.	MEAN	STD. DEV.	
DELAWARE KENT CO 080060001 A03	24	0	7	7	13	16	18	28	28	32	37	45	21	12.35	17	2.13	
INDIANA MONROE CO 152800001 A03	23	5	7	7	8	9	9	11	13	13	26	51	14	10.61	11	1.81	
LOUISIANA IBERVILLE PAR 191280001 A03	25	5	7	7	7	7	11	11	12	13	14	22	10	3.93	9	1.45	
MAINE ACADIA NAT PARK 200010001 A03	25	0	5	7	7	7	7	8	10	11	16	24	9	4.57	8	1.58	
200500001 A03	25	0	5	7	7	7	7	8	10	11	16	24	9	4.57	8	1.58	
PENNSYLVANIA CLEARFIELD CO 391820001 A03	25	0	7	7	9	9	11	11	16	18	24	59	15	12.24	12	1.92	
INDIANA CO 394240001 A03	26	9	11	16	17	19	21	25	30	35	39	55	24	11.31	22	1.63	

SECTION 3. URBAN AND NONURBAN SULFUR DIOXIDE, 1970

Table 3-1. SULFUR DIOXIDE, URBAN FREQUENCY DISTRIBUTION FOR 1970

YEAR : 1970

METHOD: BUBBLER/WEST-GAEKE

SAMPLING INTERVAL : 24-HOUR

UNITS : $\mu\text{G}/\text{CU METER (25 C)}$

LOCATION	NO. SAMP.	MIN.	FREQUENCY DISTRIBUTION, %										MAX.	ARITHMETIC		GEOMETRIC	
			10	20	30	40	50	60	70	80	90	MEAN		STD. DEV.	MEAN	STD. DEV.	
ALABAMA MONTGOMERY 012460001 A01	22	0	0	0	0	0	0	8	8	13	15	20					
ARIZONA TUCSON 030860001 A01	25	0	0	0	0	0	7	8	9	10	13	23					
CALIFORNIA ANAHEIM 050230001 A01	26	0	0	0	0	5	7	8	12	14	19	27					
GLENDALE 052940001 A01	25	0	0	0	0	7	12	12	13	17	27	33					
LONG BEACH 054100001 A01	26	0	0	11	15	17	34	43	49	57	65	87	35	24.97	23	2.97	
OAKLAND 055100001 A01	23	0	0	0	0	0	8	9	11	12	13	62					
SAN BERNARDINO 056530001 A01	25	0	0	0	0	0	5	8	9	11	13	15					
SAN DIEGO 058800001 A01	25	0	0	0	0	6	7	12	13	14	19	32					
SAN FRANCISCO 058860001 A01	25	0	0	0	0	0	7	8	10	12	19	28					
SANTA ANA 057190001 A01	24	0	0	0	0	0	5	6	7	10	19	44					
COLORADO DENVER 060480001 A01	25	0	0	0	0	7	11	13	15	19	27	60					
	060590002 A01	25	0	0	0	5	6	7	9	13	17	23	43				
CONNECTICUT BRIDGEPORT 070060001 A01	26	0	0	0	0	5	8	16	29	74	176	213					
HARTFORD 070420001 A01	25	0	0	7	15	24	45	50	75	102	121	225	57	56.32	30	3.93	
NEW HAVEN 070700001 A01	27	0	0	7	10	17	20	26	29	45	131	215	40	56.50	18	3.68	
WATERBURY 071240001 A01	27	0	0	7	8	11	14	15	18	27	43	56	17	14.50	12	2.56	
DELAWARE NEWARK 080140001 A01	25	0	0	0	0	5	7	16	19	23	30	112					
WILMINGTON 080260003 A01	24	0	0	0	7	8	8	10	15	18	61	78					
FLORIDA MIAMI 102700002 A01	26	0	0	0	0	0	7	8	9	10	12	20					
ST PETERSBURG 103980002 A01	26	0	0	5	6	8	8	11	13	21	39	96	17	22.12	10	2.76	
TAMPA 104360002 A01	25	0	0	0	0	7	9	15	17	22	30	92					
GEORGIA ATLANTA 110200001 A01	26	0	0	0	7	9	12	16	23	28	47	104					
COLUMBUS 111290001 A01	24	0	0	0	0	5	8	9	11	12	15	19					
SAVANNAH 114500001 A01	25	0	0	0	0	7	7	11	11	16	21	29					
ILLINOIS CHICAGO 141220001 A01	26	0	0	17	28	35	42	61	82	111	179	305	72	77.66	36	4.15	
	141220002 A01	25	0	7	12	15	20	64	138	204	220	294	419	120	126.84	48	5.02
INDIANA EAST CHICAGO 151180001 A01	26	0	7	11	16	27	41	66	86	101	118	197	57	50.70	33	3.47	
EVANSVILLE 151300001 A01	24	0	0	10	14	18	21	31	32	39	48	81	25	18.51	18	2.60	
HAMMOND 151780001 A01	25	0	0	13	17	19	29	32	56	132	171	205	54	55.15	29	3.81	
INDIANAPOLIS 152040001 A01	24	0	0	7	11	12	19	31	44	51		117	33	55.78	18	2.17	
SOUTH BEND 153490002 A01	24	0	0	0	5	7	7	8	10	19	21	45					

Table 3-1 (continued). SULFUR DIOXIDE, URBAN FREQUENCY DISTRIBUTION FOR 1970

YEAR : 1970

METHOD: BUBBLER/WEST-GAEKE

SAMPLING INTERVAL : 24-HOUR

UNITS : UG/CU METER (25 C)

LOCATION	NO. SAMP.	MIN.	FREQUENCY DISTRIBUTION, %										MAX.	ARITHMETIC		GEOMETRIC	
			10	20	30	40	50	60	70	80	90	MEAN		STD. DEV.	MEAN	STD. DEV.	
IOWA DES MOINES 161180001 A01	26	0	0	0	0	5	7	8	12	19	27	59					
KANSAS WICHITA 173740001 A01	24	0	0	0	0	5	5	7	8	9	12	17					
KENTUCKY ROWLING GREEN 180320001 A01	25	0	NO. OF SAMPLES (13) BELOW MIN. DET. EXCEEDS 50%										42				
COVINGTON 180800001 A01	25	0	5	6	12	18	25	25	35	39	54	62	26	17.67	18	2.57	
LEXINGTON 182300001 A01	27	0	0	0	0	5	8	8	10	18	36	72					
LOUISVILLE 182390002 A01	24	0	0	0	7	8	13	16	19	38	67	99	23	27.51	13	3.21	
LOUISIANA NEW ORLEANS 192020002 A01	24	0	0	0	0	5	6	7	8	11	19	20					
MARYLAND BALTIMORE 210120001 A01	26	0	10	15	15	30	39	45	67	94	136	162	54	48.54	33	3.11	
MASSACHUSETTS SPRINGFIELD 222160002 A01	25	0	10	14	36	42	57	80	103	159	184	297	87	80.23	51	3.33	
MORCHESTER 222440001 A01	23	0	0	0	5	13	15	21	25	59	104	112	31	36.60	15	3.68	
MICHIGAN DETROIT 231140001 A01	25	0	0	7	16	21	24	34	44	61	83	172	38	37.34	23	3.11	
FLINT 231580001 A01	26	0	0	6	8	12	15	18	19	19	27	58	16	12.92	11	2.48	
GRAND RAPIDS 231820001 A01	26	0	0	5	6	7	10	11	15	17	30	48	13	11.17	10	2.21	
LANSING 232840001 A01	24	0	0	5	8	10	14	17	26	29	43	125	22	27.04	13	2.94	
SAGINAW 234760001 A01	26	0	0	0	6	9	12	15	17	23	36	98					
MINNESOTA MINNEAPOLIS 242260001 A01	24	0	0	0	9	11	14	15	17	63	152	223	38	59.62	15	3.91	
MISSOURI ST LOUIS 264280002 A01	26	0	0	10	13	16	23	40	49	68	111	132	40	39.17	23	3.29	
NEW JERSEY BURLINGTON CO 310660002 A01	27	0	0	0	5	13	17	29	34	42	165	168	32	40.44	15	3.66	
CAMDEN 310720001 A01	26	0	0	7	10	15	21	59	126	129	198	238	69	75.71	28	4.86	
GLASSBORO 311700001 A01	26	0	0	0	0	0	6	8	9	11	14	15					
JERSEY CITY 312320001 A01	25	0	0	10	26	38	49	57	78	108	239	260	75	76.87	39	3.98	
NEWARK 313480001 A01	24	0	0	0	7	9	15	25	33	40	125	251	37	56.84	16	3.91	
PATERSON 314140001 A01	26	0	0	0	0	7	9	17	44	52	70	131					
NEW MEXICO ALBUQUERQUE 320040001 A01	27	0	NO. OF SAMPLES (16) BELOW MIN. DET. EXCEEDS 50%										21				
NEW YORK ALBANY 330040001 A01	25	0	0	0	5	7	10	12	24	35	56	90					
ROCHESTER 335760001 A01	24	0	0	6	9	13	18	27	32	42	69	227	32	46.34	16	3.35	
NORTH CAROLINA GREENSBORO 341740001 A01	26	0	0	0	0	6	7	12	14	20	32	52					

Table 3-1 (continued). SULFUR DIOXIDE, URBAN FREQUENCY DISTRIBUTION FOR 1970

YEAR : 1970

METHOD: BUBBLER/WEST-GALKE

SAMPLING INTERVAL : 24-HOUR

UNITS : UG/CU METER (25 C)

LOCATION	NO. SAMP.	MIN.	FREQUENCY DISTRIBUTION, %										MAX.	ARITHMETIC		GEOMETRIC	
			10	20	30	40	50	60	70	80	90	MEAN		STD. DEV.	MEAN	STD. DEV.	
CHICAGO 360060001 A01	26	0	5	20	25	41	45	56	66	75	102	125	51	34.72	35	2.90	
CANTON 361000001 A01	25	0	0	6	10	13	21	31	40	49	59	125	30	27.81	19	2.98	
CINCINNATI 361220003 A01	26	0	7	10	13	17	21	27	34	37	44	95	25	19.29	19	2.37	
CLEVELAND 361300001 A01	26	0	18	30	32	51	55	62	69	80	113	250	64	51.93	47	2.47	
COLUMBUS 361460001 A01	26	0	0	7	8	13	14	23	30	32	43	71	22	17.58	15	2.70	
DAYTON 361660001 A01	25	0	0	5	8	10	15	22	33	35	83	87	25	25.54	15	3.05	
DETROIT 366600001 A01	26	0	0	5	6	8	8	11	13	19	27	51	13	12.43	9	2.39	
ELKINGTON 367700001 A01	25	0	5	7	16	17	22	25	39	47	58	88	30	23.90	21	2.65	
OKLAHOMA CITY 372200001 A01	25	0	0	0	0	0	6	7	8	8	16	19					
PENNSYLVANIA ALLENTOWN 390120001 A01	26	0	0	0	7	23	29	57	80	87	135	235	57	61.46	25	4.80	
JOHNSTOWN 394460001 A01	25	0	0	0	0	8	20	26	33	42	67	89					
PHILADELPHIA 397140001 A01	25	9	15	21	50	61	66	97	113	125	165	218	84	57.41	62	2.47	
397140002 A01	24	0	7	21	36	39	50	71	82	109	219	243	73	69.55	44	3.21	
PITTSBURGH 397260001 A01	25	0	8	26	38	43	53	60	65	74	130	148	57	38.95	40	2.90	
READING 397620001 A01	25	0	0	0	7	8	14	16	43	55	63	131	30	33.97	14	3.72	
WAPATON 399160001 A01	24	0	0	0	5	7	11	22	30	49	80	124	28	33.61	14	3.68	
YORK 399560002 A01	25	0	0	5	8	10	16	24	42	52	85	94	31	31.00	17	3.44	
PUERTO RICO BAYAMON 400380002 A01	25	0	0	0	0	7	9	10	12	14	20	27					
GUAYANILLA 401080002 A01	24	0	0	0	0	0	7	8	13	18	23	154					
RHODE ISLAND PROVIDENCE 410300001 A01	26	0	0	11	14	23	35	61	79	101	160	291	67	77.49	32	4.02	
TENNESSEE CHATTANOOGA 440380001 A01	25	0	0	0	0	7	11	15	20	23	64	74					
MEMPHIS 442340001 A01	24	0	0	0	5	7	7	9	11	16	19	208					
NASHVILLE 442540001 A01	24	0	0	0	8	9	11	13	19	25	28	55	15	12.94	11	2.51	
TEXAS AUSTIN 450220002 A01	24	0	0	0	0	0	5	7	8	9	12	17					
BEAUMONT 450330001 A01	23	0	0	0	0	0	7	7	8	12	15	30					
CORPUS CHRISTI 451150001 A01	24	0	0	0	0	0	5	7	8	8	10	25					
DALLAS 451310002 A01	24	0	0	0	0	0	6	8	10	11	17	20					
EL PASO 451700002 A01	25	0	6	8	9	11	18	21	25	30	40	116	23	23.79	16	2.46	
FORT WORTH 451880001 A01	24	0	0	0	0	5	7	8	8	11	17	27					
HOUSTON 452560001 A01	25	0	0	0	0	6	10	12	13	15	16	42					
SAN ANTONIO 454570001 A01	26	0	0	0	0	6	7	7	8	9	13	17					

Table 3-1 (continued). SULFUR DIOXIDE, URBAN FREQUENCY DISTRIBUTION FOR 1970

YEAR : 1970

METHOD: BUBBLER/WEST-GAEKE

SAMPLING INTERVAL : 24-HOUR

UNITS : $\mu\text{G}/\text{CU METER (25 C)}$

LOCATION	NO. SAMP.	MIN.	FREQUENCY DISTRIBUTION, %										MAX.	ARITHMETIC		GEOMETRIC	
			10	20	30	40	50	60	70	80	90	MEAN		STD. DEV.	MEAN	STD. DEV.	
UTAH SALT LAKE CITY 460920001 A01	26	0	0	0	0	7	7	8	11	11	23	34					
VIRGINIA ACRFCLK 482140001 A01	25	0	0	8	13	16	19	18	29	35	51	99	26	24.79	17	2.73	
RICHMOND 482660002 A01	21	0	0	5	9	11	19	28	38	40	54	70	24	20.40	15	3.12	
WASHINGTON SEATTLE 491840001 A01	26	0	0	0	5	12	20	26	28	34	46	77	22	19.02	13	3.15	
TACOMA 492140001 A01	23	0	0	0	0	7	9	11	11	12	16	39					
WEST VIRGINIA CHARLESTON 500280001 A01	26	0	0	7	8	11	13	15	24	29	74	164	27	37.33	14	3.01	
WISCONSIN MILWAUKEE 512200001 A01	25	0	0	6	7	9	13	17	20	27	29	39	16	10.74	12	2.29	
WYOMING CASPER 520120001 A01	25	0	0	0	0	0	6	10	12	15	21	27					

Table 3-2. SULFUR DIOXIDE, NONURBAN FREQUENCY DISTRIBUTION FOR 1970

YEAR : 1970

METHOD: BUBBLER/WEST-GAEKE

SAMPLING INTERVAL : 24-HOUR

UNITS : UG/CU METER (25 C)

LOCATION	NO. SAMP.	MIN.	FREQUENCY DISTRIBUTION, %										MAX.	ARITHMETIC		GEOMETRIC	
			10	20	30	40	50	60	70	80	90	MEAN		STD. DEV.	MEAN	STD. DEV.	
HAWAII																	
HAWAII CO 120080002 A03	23	0	0	0	0	0	5	7	8	12	16	25					
INDIANA																	
MONROE CO 152800001 A03	25	0	0	0	5	7	8	9	11	12	21	27					
LOUISIANA																	
IBERVILLE PAR 191280001 A03	24	0	0	0	0	5	6	7	8	11	15	24					
MAINE																	
ACADIA NAT PARK 200010001 A03	24	0	0	0	0	0	7	8	10	13	19	23					
VIRGINIA																	
SHENANDOAH NAT PAR 482890001 A03	25	0	0	0	0	0	5	7	8	10	18	42					

SECTION 4. URBAN AND NONURBAN SULFUR DIOXIDE, 1971

Table 4-1. SULFUR DIOXIDE, URBAN FREQUENCY DISTRIBUTION FOR 1971

YEAR : 1971

METHOD: BUBBLER/WEST-GAEKE

SAMPLING INTERVAL : 24-HOUR

UNITS : UG/CU METER (25 C)

LOCATION	NO. SAMP.	MIN.	FREQUENCY DISTRIBUTION, %										MAX.	ARITHMETIC		GEOMETRIC	
			10	20	30	40	50	60	70	80	90	MEAN		STD. DEV.	MEAN	STD. DEV.	
ALABAMA BIRMINGHAM 01C380003 A01	24	0	0	0	5	5	5	7	8	9	11	16	7	3.77	6	1.80	
MONTGOMERY 012460001 A01	24	0	0	0	0	0	0	6	7	9	11	19					
ARIZONA PHOENIX 030600002 A01	23	0	0	5	6	7	7	9	10	12	13	59	10	11.48	8	2.08	
CALIFORNIA ANAHEIM 050230001 A01	23	0	0	5	6	9	10	11	14	16	29	44	12	10.02	9	2.16	
SAN FRANCISCO 056860001 A01	22	0	0	0	6	7	7	7	10	11	11	31	8	5.97	6	1.90	
SAN JOSE 056980002 A01	26	0	0	0	0	0	0	7	7	9	11	16					
CONNECTICUT NEW HAVEN 07C700001 A01	26	0	0	7	11	17	23	39	59	62	100	154	40	40.15	23	3.35	
WATERBURY 071240001 A01	24	7	7	12	24	34	35	42	44	57	95	158	44	37.84	31	2.37	
DELAWARE WILMINGTON 080260003 A01	23	0	5	7	12	16	22	28	32	59	62	96	30	26.53	20	2.69	
FLORIDA MIAMI 102700002 A01	24	0	0	0	0	0	0	5	6	7	7	9					
ST PETERSBURG 103980002 A01	25	0	0	0	5	6	8	9	14	26	36	111					
TAMPA 104360002 A01	25	0	0	0	5	10	11	13	21	40	52	70	20	20.58	11	3.11	
GEORGIA ATLANTA 110200001 A01	24	0	7	7	11	14	16	23	24	35	45	71	22	16.53	16	2.25	
COLUMBUS 111280001 A01	23	0	0	0	0	0	5	6	7	7	10	28					
SAVANNAH 114500001 A01	26	0	0	0	0	7	7	7	7	10	16	25					
ILLINOIS CHICAGO 141220002 A01	27	0	7	11	14	24	49	73	107	117	184	296	73	75.62	37	3.74	
INDIANA EVANSVILLE 151300001 A01	24	0	5	7	10	11	14	20	22	29	35	63	19	14.20	14	2.26	
HAMMOND 151780001 A01	24	0	6	7	12	14	17	26	32	54	98	109	32	32.08	20	2.75	
INDIANAPOLIS 152040001 A01	22	0	0	5	5	7	8	11	14	15	20	37	11	9.43	8	2.22	
NEW ALBANY 152980002 A01	22	0	NO. OF SAMPLES (13) BELOW MIN. DET. EXCEEDS 50%										11				
IOWA DES MOINES 161190001 A01	24	0	0	0	0	0	5	7	7	10	11	16					
KANSAS KANSAS CITY 171800002 A01	23	0	0	0	0	0	7	10	11	11	14	37					
WICHITA 173740001 A01	25	0	0	0	0	0	5	5	7	7	9	24					
KENTUCKY COVINGTON 180890001 A01	25	0	0	5	7	11	13	15	21	22	55	67	19	17.45	13	2.57	
LOUISIANA BATON ROUGE 190280001 A01	24	0	0	0	5	5	7	8	9	14	21	47					
NEW ORLEANS 192620002 A01	23	0	0	0	0	5	5	7	7	9	11	13					
SHREVEPORT 192740001 A01	24	0	NO. OF SAMPLES (13) BELOW MIN. DET. EXCEEDS 50%										17				
MARYLAND BALTIMORE 210120001 A01	24	0	0	5	8	10	14	26	27	40	101	112	29	34.28	15	3.36	

Table 4-1 (continued). SULFUR DIOXIDE, URBAN FREQUENCY DISTRIBUTION FOR 1971

YEAR : 1971

METHOD: BUBBLER/WEST-GAEKI

SAMPLING INTERVAL : 24-HOUR

UNITS : UG/CU METER (25 C)

LOCATION	NO. SAHP.	MIN.	FREQUENCY DISTRIBUTION, %										ARITHMETIC		GEOMETRIC	
			10	20	30	40	50	60	70	80	90	MAX.	MEAN	STD. DEV.	MEAN	STD. DEV.
MASSACHUSETTS FALL RIVER 220580002 A01	20	0	0	5	8	10	16	22	27	40	51	138	26	31.07	15	3.07
WCRCHESTER 22264C001 A01	21	0	0	10	13	17	29	44	52	59	118	181	45	44.43	24	3.45
MICHIGAN DETROIT 231180001 A01	23	0	0	5	5	7	9	10	12	21	25	32	12	9.02	9	2.27
SAGINAW 234760001 A01	26	0	0	0	6	7	7	9	11	21	29	45				
MINNESOTA ST PAUL 243300001 A01	25	0	0	5	7	7	9	9	22	33	82	86	23	28.09	12	3.15
MISSOURI ST LOUIS 264280001 A01	21	0	0	0	5	6	9	9	13	14	15	41				
264280002 A01	26	0	5	7	10	18	22	28	37	50	55	81	28	21.82	19	2.57
NEBRASKA OMAHA 281880001 A01	25	0	0	0	7	7	9	10	12	14	33	78	13	16.49	8	2.51
NEW JERSEY AURLINGTON CO 31066C002 A01	26	0	0	0	0	5	7	10	12	14	18	47				
TRENTON 315400001 A01	23	0	0	0	0	5	5	7	9	11	12	20				
NEW YORK ALBANY 33064C001 A01	23	0	5	13	17	21	24	53	57	84	127	141	47	43.34	27	3.30
ALBANY 330660001 A01	22	0	0	0	0	5	5	9	10	11	14	15				
ROCHESTER 33576C001 A01	24	3	5	6	7	10	11	15	20	36	60	89	22	23.76	13	2.68
SYRACUSE 336620002 A01	21	0	NO. OF SAMPLES (11) BELOW MIN. DET. EXCEEDS 50%										20			
NORTH CAROLINA GREENSBORO 341740001 A01	24	0	0	0	0	0	6	7	7	10	11	20				
WINSTON-SALEM 344460002 A01	22	0	0	0	0	5	7	10	12	23	35	41				
OHIO AKRON 360660001 A01	23	0	0	6	7	9	11	26	37	50	85	166	31	39.11	15	3.54
CANTON 361000001 A01	23	0	0	0	7	13	15	17	19	28	32	53	17	13.84	12	2.67
CINCINNATI 361220001 A01	25	5	9	10	12	14	16	16	18	19	28	57	17	10.09	15	1.61
361220003 A01	26	0	0	7	7	11	12	23	29	31	40	115	24	27.37	14	3.09
COLUMBUS 361440001 A01	24	0	7	9	14	15	17	27	29	39	68	120	28	24.64	19	2.57
JAYTON 361560001 A01	22	0	0	0	5	10	11	22	25	43	55	68	22	21.22	13	3.10
TOLEDO 366670001 A01	26	0	0	0	5	7	9	10	22	23	37	61	15	15.43	9	2.72
YOUNGSTOWN 367760001 A01	26	3	0	0	0	7	8	14	17	21	48	104				
OKLAHOMA TULSA 371000001 A01	24	0	NO. OF SAMPLES (13) BELOW MIN. DET. EXCEEDS 50%										24			
PENNSYLVANIA ERIE 391060002 A01	23	0	0	0	0	5	7	9	14	18	38	177				
PHILADELPHIA 397140002 A01	25	0	10	16	20	30	54	62	76	78	118	125	54	38.49	37	2.84
PITTSBURGH 397260001 A01	23	0	9	22	32	38	45	47	53	88	102	112	50	32.64	35	2.92
SCANTON 398040001 A01	24	0	0	0	7	9	11	28	33	56	70	182	30	39.94	14	3.62
YORK 399560002 A01	24	0	0	5	6	7	7	14	14	19	32	43	12	10.97	9	2.31

Table 4-1 (continued). SULFUR DIOXIDE, URBAN FREQUENCY DISTRIBUTION FOR 1971

YEAR : 1971

METHOD: BUBBLER/WEST-GAEKE

SAMPLING INTERVAL : 24-HOUR

UNITS : UG/CU METER (25 C)

LOCATION	NO. SAMP.	MIN.	FREQUENCY DISTRIBUTION, %										MAX.	ARITHMETIC		GEOMETRIC	
			10	20	30	40	50	60	70	80	90	MEAN		STD. DEV.	MEAN	STD. DEV.	
PUERTO RICO SAYAMAN 400390002 A01	25	0	0	0	0	0	5	7	8	8	12	15					
TEENESSEE MEMPHIS 442340001 A01	25	0	0	0	0	5	7	7	10	11	12	16					
TEXAS FORT WORTH 451390001 A01	23	0	0	0	0	0	5	5	7	7	7	9					
PASADENA 454060002 A01	24	0	0	0	0	0	0	5	6	7	7	9					
VIRGINIA NORFOLK 482140001 A01	24	0	0	7	9	10	12	21	31	44	93	149	30	37.74	15	3.31	
PORTSMOUTH 482440001 A01	25	0	NO. OF SAMPLES (14) BELOW MIN. DET. EXCEEDS 50%										35				
WASHINGTON SEATTLE 491840001 A01	25	0	7	7	14	16	19	21	27	29	48	89	24	21.01	17	2.34	
WEST VIRGINIA CHARLESTON 500290001 A01	22	0	0	0	0	5	7	7	8	11	11	17					
WISCONSIN MADISON 511860001 A01	26	0	0	0	5	7	7	10	14	15	21	75					

Table 4-2. SULFUR DIOXIDE, NONURBAN FREQUENCY DISTRIBUTION FOR 1971

YEAR : 1971

METHOD: BUBBLER/WEST-GAEKE

SAMPLING INTERVAL : 24-HOUR

UNITS : UG/CU METER (25 C)

LOCATION	NO. SAMP.	MIN.	FREQUENCY DISTRIBUTION, %										MAX.	ARITHMETIC		GEOMETRIC	
			10	20	30	40	50	60	70	80	90	MEAN		STD. DEV.	MEAN	STD. DEV.	
DELAWARE KENT CO 080060001 A03	24	0	NO. OF SAMPLES (13) BELOW MIN. DET. EXCEEDS 50%										15				
FLC R I D A HARDEE CO 101680001 A03	26	0	0	0	0	0	5	5	7	7	8	10					
MAINE ACADIA NAT PARK 200010001 A03	25	0	0	0	0	5	7	7	7	10	11	29					
MISSOURI SHANNON CO 264480002 A03	22	0	0	0	0	5	5	7	7	7	9	44					
NEW HAMPSHIRE COOS CO 300140001 A03	24	0	0	0	5	5	5	7	7	12	13	23					
NEW YORK JEFFERSON CO 333340001 A03	24	0	NO. OF SAMPLES (13) BELOW MIN. DET. EXCEEDS 50%										14				
OKLAHOMA CHEROKEE CO 370480001 A03	22	0	0	0	0	0	0	5	7	7	10	21					
SOUTH CAROLINA RICHLAND CO 421900002 A03	22	0	0	0	0	0	5	7	7	9	11	12					
VIRGINIA SHENANDOAH NAT PAR 482890001 A03	24	0	0	0	0	5	5	7	7	10	16	35					